

WHAT IS CLAIMED IS:

1. An absolute coordinate single control element device that enables user control of a computer cursor and emulation of mouse clicks, the device comprising:

5 a single control element manipulable by a user of said device;
 a surface defining an x-y plane whereon said element is manipulable by said user;

 means for resolving user movement of said single control element relative to said x-y plane of said surface and for outputting a computer
10 recognizable signal therefrom; and

 means for recognizing user manipulation of said single control element in an axis normal to said x-y plane and for discerning therefrom at least one emulated mouse click;

 wherein relative position of said single control element on said x-y
15 plane of said surface provides said user with information as to relative position of a cursor on a computer display controlled by said device.

2. The device of claim 1, wherein said surface exhibits a dynamic coefficient of friction such that said friction between said surface and said
20 single control element increases with decreasing rate of movement of said single control element on said surface.

3. The device of claim 1, wherein said means for recognizing discerns at least one of a left mouse click, a double mouse click, and a right mouse
25 click.

4. The device of claim 1, wherein said means for recognizing discerns at least two of a left mouse click, a double mouse click, and a right mouse
30 click.

5. The device of claim 1, wherein said means for resolving includes:
a pantographic mechanism having a first end coupled to said single

control element, and having a second end; and
a light emitting element and a light detecting element disposed to
optically sense x-axis and y-axis movement of said single element in said x-y
plane.

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6. The device of claim 1, wherein said means for resolving includes:
a reflective element coupled for movement along an x-axis and a y-
axis of said x-y plane responsive to movement of said single element;

at least one stationary light transmitter disposed to direct light upon
10 said reflective element; and

at least one stationary light detector disposed to detect light from said
light transmitter reflected by said reflective element.

7. The device of claim 1, wherein said means for resolving includes:
15 a pantographic mechanism having a first end coupled to said single
control element, and having a second end;

a reflective element coupled to said second end of said pantographic
mechanism for movement along an x-axis and a y-axis of said x-y plane
responsive to movement of said single element;

20 at least one stationary light transmitter disposed to direct light upon
said reflective element; and

at least one stationary light detector disposed to detect light from said
light transmitter reflected by said reflective element.

25 8. The device of claim 1, wherein said means for resolving includes a
pantographic mechanism coupled to said single control element.

9. The device of claim 1, wherein said single control element is
manipulable by a single finger of said user.

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10. The device of claim 1, wherein said single control element is
manipulable by a hand of said user.

11. The device of claim 1, wherein said single control element is manipulable by a toe said user.

12. The device of claim 1, wherein a housing for at least a portion of
5 said device also houses a computer keyboard.

13. The device of claim 1, wherein said device controls menu selection on a kiosk.

10 14. The device of claim 1, wherein said surface is made of X-ray film.

15. The device of claim 1, wherein said surface is made of polycarbonate material.

15 16. The device of claim 1, wherein said means for resolving includes a pad disposed in contact with a lower face of said surface, said pad in response to force from said control element on said surface outputting at least one parameter selected from a group consisting of (a) resistance change, (b) capacitance change, (c) a signal responsive to magnitude of said
20 force, (d) a signal responsive to electrical charge, and (e) a signal responsive to light from said control element detected on said surface.

17. An absolute coordinate single control element device that enables user control of a computer cursor and emulation of mouse clicks, the device
25 comprising:

a single control element manipulable by a user of said device;
a surface defining an x-y plane whereon said element is manipulable by said user, said surface having a dynamic coefficient of friction such that friction between said surface and said single control element increases with
30 decreasing rate of movement of said single control element on said surface;
a pantographic mechanism having a first end coupled to said single control element and having a second end;

a reflective element coupled to said second end of said pantographic mechanism for movement along an x-axis and a y-axis of said x-y plane responsive to movement of said single element;

5 at least one stationary light transmitter disposed to direct light upon said reflective element; and

at least one stationary light detector disposed to detect light from said light transmitter reflected by said reflective element;

10 means coupled to said light detector for outputting a computer recognizable signal responsive to detected movement of said control element on said x-y plane;

means for recognizing user manipulation of said single control element in a direction normal to said x-y plane and for discerning therefrom at least one emulated mouse click;

15 wherein relative position of said single control element on said x-y plane of said surface provides said user with information as to relative position of a cursor on a computer display controlled by said device.

20 18. The device of claim 17, wherein said means for recognizing discerns at least one of a left mouse click, a double mouse click, and a right mouse click.

25 19. The device of claim 17, wherein said means for recognizing discerns at least two of a left mouse click, a double mouse click, and a right mouse click.

20. The device of claim 17, further including:
a housing wherein is disposed said device but for said single control element; and
a computer keyboard disposed within said housing.

30 21. The device of claim 17, wherein said single control element is manipulable by at least one of (a) a single finger of said user, (b) a hand of

said user, and (c) a toe said user.

22. The device of claim 17, wherein said surface is selected from a group consisting of (a) X-ray film, and (b) polycarbonate material.

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23. A method to enable user control of a computer cursor and emulation of mouse clicks using an absolute coordinate single control element, the method comprising:

10 providing a single control element manipulable by a user in an x-y plane to move said cursor and in an axis normal to said x-y plane to emulate mouse clicks;

providing a surface defining said x-y plane whereon said element is manipulable by said user, said surface having a dynamic coefficient of friction such that friction between said surface and said single control element
15 increases with decreasing rate of movement of said single control element on said surface;

translating movement of said control element on said x-y plane into movements along an x-axis and a y-axis;

20 detecting said movements along said x-axis and said y-axis, and detecting movements along said axis to discern emulated mouse clicks, and outputting a computer recognizable signal responsive to detected said movements.

24. The method of claim 23, wherein said single control element is
25 shaped as to be manipulated by a handicapped user.

25. The method of claim 23, wherein downward movement of said single control element along said axis emulates one of a single mouse click and a double mouse click.

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26. The method of claim 23, wherein upward movement of said single control element along said axis emulates a right mouse click.

27. The method of claim 23, wherein said surface is selected from a group consisting of (a) X-ray film, and (b) polycarbonate material.

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